

We claim:

1. A multiple-element antenna for a mobile communication device, comprising:

a monopole portion having a top section, a middle section and a bottom section, wherein the middle section defines a recess between the top and bottom sections, and wherein the bottom section includes a monopole feeding port configured to couple the monopole portion of the multiple-element antenna to communications circuitry in the mobile communication device; and

a dipole portion having at least one dipole feeding port configured to couple the dipole portion of the multiple-element antenna to communications circuitry in the mobile communications device;

wherein the dipole portion of the multiple-element antenna is positioned within the recess defined by the monopole portion of the multiple-element antenna in order to electromagnetically couple the monopole portion with the dipole portion.

2. The multiple-element antenna of claim 1, wherein the monopole portion and the dipole portion are fabricated on a single substrate.

3. The multiple-element antenna of claim 2, wherein the substrate is a flexible dielectric substrate.

4. The multiple-element antenna of claim 1, wherein the mobile communication device is a dual-band mobile communication device, and wherein the monopole portion is tuned to a first operating frequency and the dipole portion is tuned to a second operating frequency.

5. The multiple-element antenna of claim 1, wherein the top section of the monopole portion includes a meandering line.
6. The multiple-element antenna of claim 5, wherein the conductor length of the meandering line is pre-selected to tune the monopole portion to an operating frequency.
7. The multiple-element antenna of claim 1, wherein the dipole portion is an open folded dipole antenna.
8. The multiple-element antenna of claim 1, wherein the dipole portion is an offset feed, open folded dipole antenna.
9. The multiple-element antenna of claim 1, wherein the dipole portion includes a top load.
10. The multiple-element antenna of claim 9, wherein dimensions of the top load are pre-selected to tune the dipole portion to an operating frequency.
11. The multiple-element antenna of claim 1, wherein the dipole portion includes a first conductor section and a second conductor section.
12. The multiple-element antenna of claim 11, wherein the first and second conductor sections define a gap.

13. The multiple-element antenna of claim 12, wherein the size of the gap is pre-selected to set the gain of the dipole portion.
14. The multiple-element antenna of claim 1, wherein the monopole feeding port couples the monopole portion to a receiver in the mobile communication device.
15. The multiple-element antenna of claim 1, wherein the dipole feeding port couples the dipole portion to a transmitter in the mobile communication device.
16. The multiple-element antenna of claim 1, wherein the multiple-element antenna is positioned within a housing of the mobile communication device.
17. The multiple-element antenna of claim 3, wherein the multiple-element antenna is mounted to an inside surface of the mobile communication device.
18. The multiple-element antenna of claim 17, wherein the flexible dielectric substrate is folded to mount the multiple-element antenna to a plurality of perpendicular inside surfaces of the mobile communication device.
19. A multiple-element antenna for use with a mobile communication device having a transmitter and a receiver, wherein the multiple-element antenna includes a monopole portion coupled to the receiver and a dipole portion coupled to the transmitter, the multiple-element antenna comprising:

a single dielectric substrate; and

the monopole portion and the dipole portion fabricated on the single dielectric substrate;

wherein the dipole portion is fabricated in close proximity to the monopole portion in order to electromagnetically couple the monopole portion with the dipole portion.

20. The multiple-element antenna of claim 19, wherein the dipole portion is fabricated within a recess defined by the monopole portion.

21. The multiple-element antenna of claim 19, wherein the multiple-element antenna is mounted on at least one inside surface of the mobile communication device.

22. The multiple-element antenna of claim 19, wherein the mobile communication device is a dual-band mobile communication device, and wherein the monopole portion is tuned to a first operating frequency and the dipole portion is tuned to a second operating frequency.

23. The multiple-element antenna of claim 19, wherein the mobile communication device is selected from the group consisting of: a Personal Digital Assistant, a cellular telephone, and a wireless two-way email communication device.